SSR processing - Introduction

Donato Passarelli / Fermilab

PIP-II Technical Workshop

3 December 2020

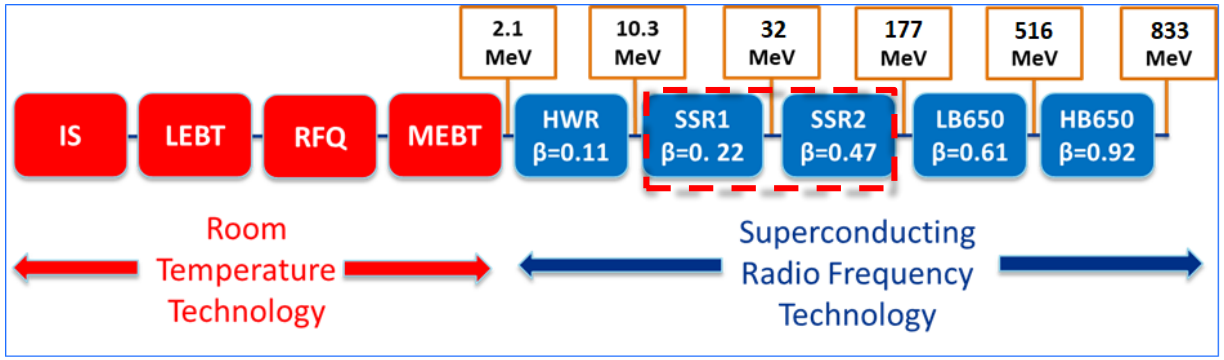
A Partnership of:
- US/DOE
- India/DAE
- Italy/INFN
- UK/UKRI-STFC
- France/CEA, CNRS/IN2P3
- Poland/WUST

Introduction

SFRs – Single Spoke Resonator CryoModules

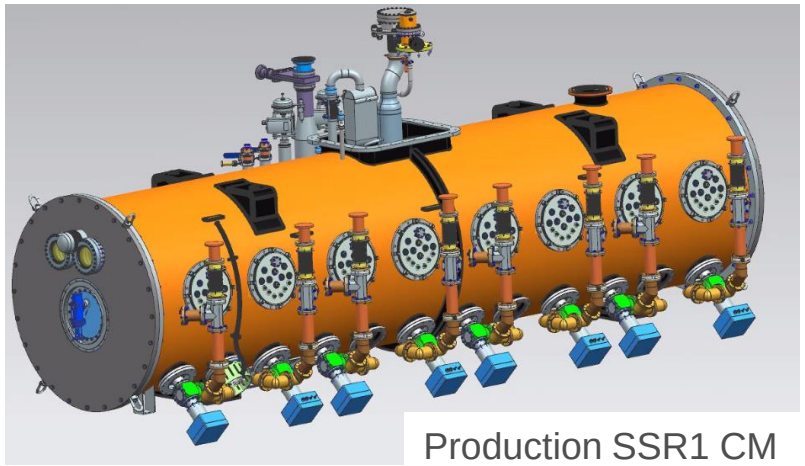
Scope: Management, design, procurement, fabrication, and testing of the Single Spoke Resonator cavities and cryomodules.

Deliverables: qualified CMs ready for installation into PIP-II tunnel

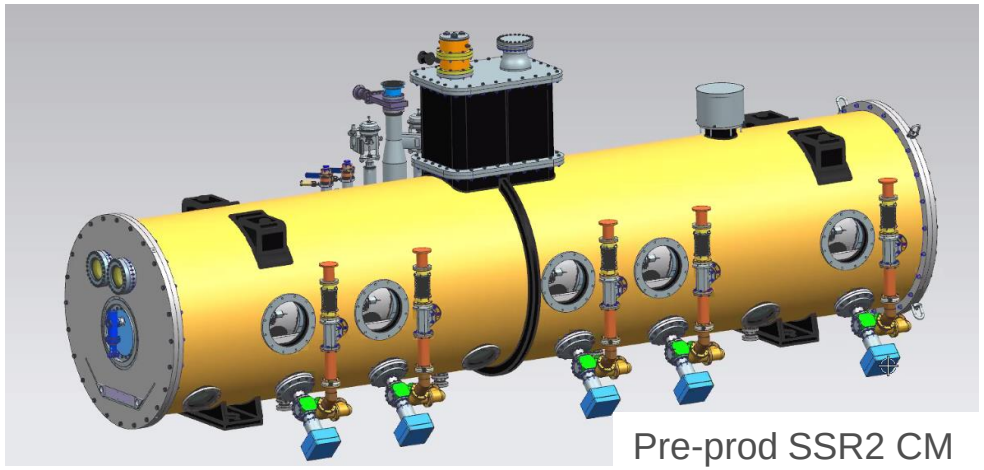


	SSR1	SSR2
# CMs	1+2	1+7
Cavities per CM	8	5
Solenoids per CM	4	3
CM configuration c: cavities; s: solenoids	4x (csc)	sccsccsc
CM length (m)	5.2	6.5

Proto SSR1 CM



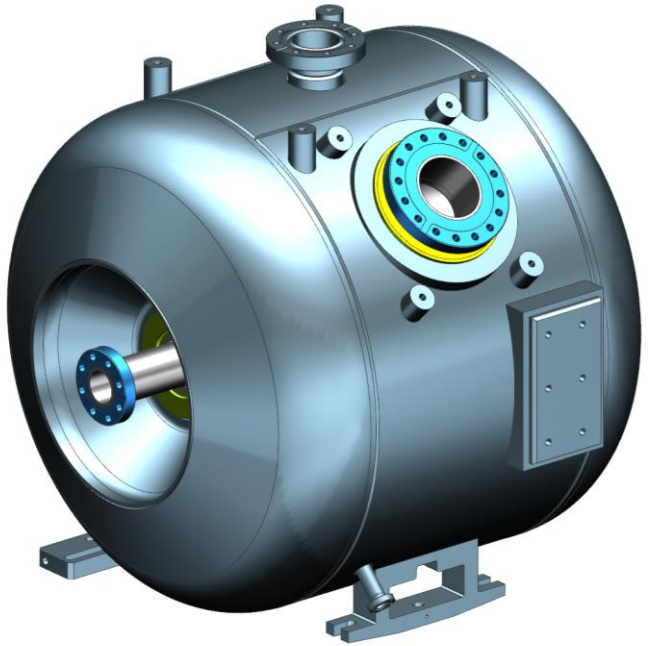
Production SSR1 CM

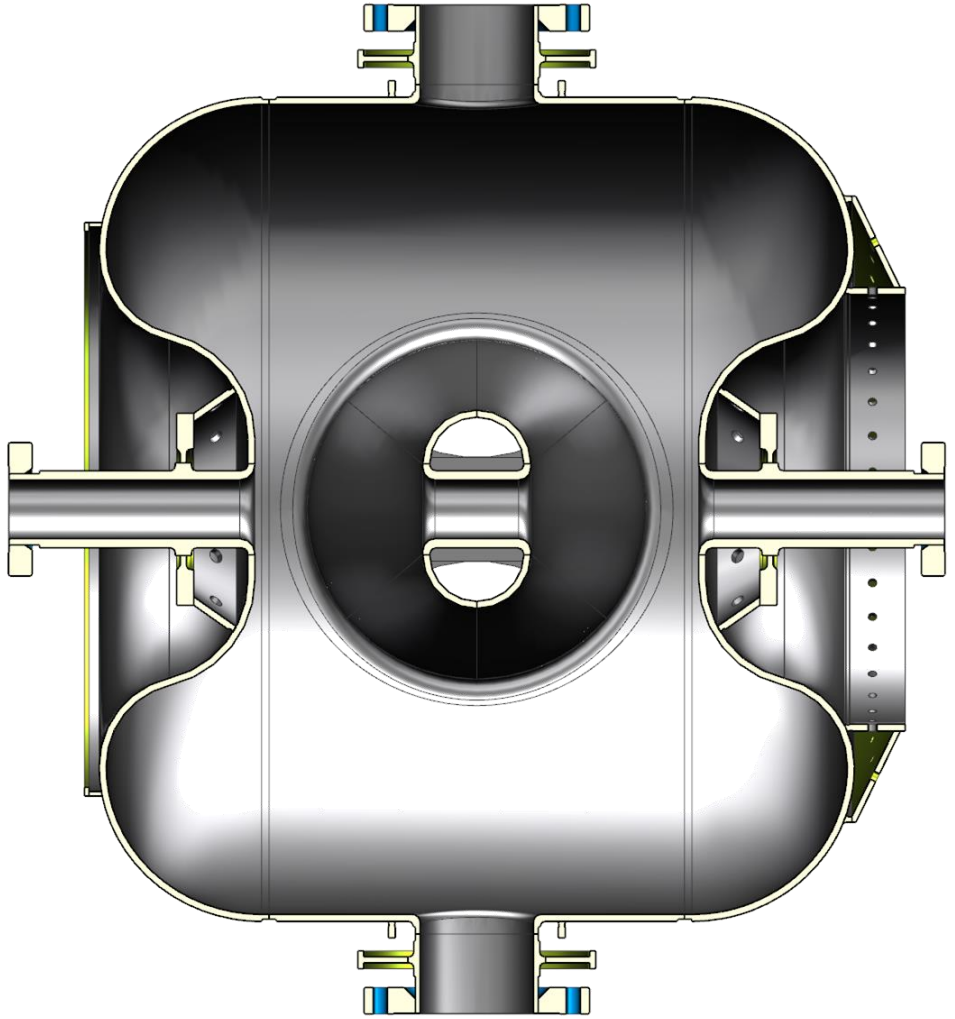


Pre-prod SSR2 CM

Pre-production SSR2 cavities

- Design completed
- Procurement in progress
- First bare cavity fabricated by the end of CY 2021





Agenda and Goals

Thursday 03/12/20				
Time	**Duration**	**Title**	**Presenter**	**Institute**
Cavity Processing & Testing - SSR BCP & furnace treatment				
7:30 AM	0:05	Processing and testing WG: SSR processing introduction	Donato Passarelli	FNAL
7:35 AM	0:15	SSR cavity processing plans at Fermilab/ANL & IJCLab	David Longuevergne	IJCLab
7:50 AM	0:15	Processing of spoke cavities at Fermilab/ANL and rotational BCP	Tom Reid	ANL
8:05 AM	0:15	Technology transfer to industry and novel processing techniques	Paolo Berrutti	FNAL
8:20 AM	0:15	BCP process development and verification in industry for ESS cavities	Alan Wheelhouse	STFC
8:35 AM	0:55	Discussion	ALL	
9:30 AM	0:15	Break		

- Process flowchart for SSR2 cavities and Acceptance Criteria
  - "Standardization" across partners
  - List of potential areas to improve the baseline plan
  - Lessons learned from previous experiences, (e.g., rotational BCP)
- Technology transfer to industry
- Alternative processing techniques, e.g., plasma, EP, etc?